Amendments to the Drawings:

The attached sheet of the drawings includes changes to Figs. 1 and 7 in which labels are added to boxes in the figures. Also, in Figure 7 two additional reference number labels have been added. An annotated marked-up drawing is included for Figure 7 to show the newly added reference number labels. These sheets replace the original sheets including Figs. 1 and 7.

Attachment: Replacement Sheets for Figures 1 and 7.
Annotated Marked-up Drawing for Figure 7.

REMARKS/ARGUMENTS

Drawing Amendments.

Figs 1 and 7 were objected under 37 C.F.R. § 1.84(o) on the grounds that there are "no descriptive legends for the boxes". Figures 1 and 7 have been amended to add labels to boxes in the figures. Some of the boxes were resized and their positions adjusted to accommodate the labels, and some of the reference numbers were moved to accommodate the changes in the boxes of the figures. Also, in Figure 7 two additional reference number labels have been added. An annotated marked-up drawing is included for Figure 7 to show the newly added reference number labels. Applicant submits that no new matter has been added. Applicant submits that the amended Drawings satisfy 37 C.F.R. § 1.84(o).

Claim Amendments.

Claims 1-20 are pending. Claims 1, 11, and 18 are independent claims, and the remaining claims depend, directly or indirectly, from claims 1, 11, and 18. Claims 11, 17, and 20 have been amended to clarify the claimed invention.

Claim Rejections Under § 112.

Claims 11-17 and 20 were rejected under 35 U.S.C. § 112 as being indefinite for failing to point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has amended claims 11, 17, and 20 to correct typographical errors. In particular, claim 11 has been amended to add antecedent basis for "the output of the transmitter", claim 17 has been amended to change "national network" to "optical backbone network", and claim 20 has been amended to change its dependence to claim 18. Claim 11 was also amended to correct a typographical error by deleting a semicolon and inserting a period at the end of the claim.

Support for the amendment to claim 11 is found, for example, in claim 1. Support for the amendment to claim 17 is found, for example, in claim 12.

Applicant submits that claims 11-17 and 20, as amended, satisfy 35 U.S.C. § 112.

Claim Rejections Under § 102.

Claims 1, 2, and 4 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent Number 6,674,966 ("Koonen"). Koonen, however, does not teach the transmission system claimed in the present application. In particular, claim 1 recites a transmission system comprising "a content server". In contrast, Koonen fails to teach or suggest a content server.

The Action states that the BTS 104 in the base station controller is equivalent to the content server. However, the BTS 104 is only a transceiver. *See*, for example, Koonen at column 9, lines 45-46 ("In Fig. 7 there are shown n base transceiver station functional blocks 104"). *See* also column 10, lines 34-38 ("The base transceiver blocks 104, 106 need to generate and receive the analogue RF signals going to and coming from the optically remote antenna locations. Also they need to perform several mobility-related functions, such as macro-diversity signal handling ..."). In other words, the base transceiver blocks 104 are transceivers, not content servers.

This failing of Koonen to teach the elements of the claimed invention is consistent with the scope of Koonen, which "relates to a wireless communications network" (column 1, lines 6-7; *see* also column 2, lines 35-36: "The present invention provides a wireless communication system"). In other words, the purpose of the teaching in Koonen is to provide an improved communication path for a wireless communication network, not for multicasting information from a content server as recited in claim 1.

Therefore, Applicant submits that Koonen fails to teach at least one of the elements recited in claim 1. Claims 2 and 4 depend from claim 1 and, for at least the same reasons recited with regard to claim 1, Applicant submits that claims 2 and 4 are not anticipated by Koonen.

Claim Rejections Under § 103.

Claims 1-4, 7-9, 11-12, and 15-17 were rejected under 35 U.S.C. § 103 as being unpatentable over Chang et al. (Y. Chang et al., "An Open-Systems Approach to Video on Demand", IEEE Communications Magazine, May 1994) in view of Tajima (U.S. Patent Number 6,366,377). Applicant, however, respectfully disagrees.

Chang teaches in the area of cable television and video-on-demand, and Tajima teaches in the area of optical telecommunications networks. Although the two areas have similarities and certain relationships, they both have their own unique requirements, legacy restrictions, and real and

perceived limitations. As a result, Applicant submits that it would not be obvious to one of ordinary skill in the relevant arts to combine the teachings of Chang with the teachings of Tajima to reach the claimed invention in the present application.

The present invention offers advantages, as stated in the Action on page 4:

> *a multicast switch provides video programs to simultaneous viewers at reduced cost by sharing the cost of transmission between the video server and the multicast switch.*

However, there is no motivation in either Chang or Tajima to combine the references to teach the present invention and realize those advantages. The Action states on page 4:

> *Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a multicast/broadcast switch, as taught in Tajima, in the VOD system of Chang et al. because a multicast switch provides video programs to simultaneous viewers at reduced cost.*

However, this conclusion comes from hindsight using the teachings of the present invention. In other words, the present invention teaches combining a number of elements to realize certain advantages, such as those identified in the Action. However, the cited prior art fails to teach or suggest that the particular elements can be combined between the two unique fields of cable television and optical communications to realize the benefits of the present invention.

For example, Figure 8 of the present invention illustrates an example of various placements of multi-cast switches 40 in a national network 56, regional networks 58, and head ends 60. Chang and Tajima, however, fail to teach where and how such switches can and should be placed to achieve the teachings of the present invention. For example, Figure 5 of Chang is cited in the Action when rejecting claim 1. That figure shows a switch located in a "switching office" which also contains the head end. That switch, however, has multiple inputs and only a single output, and it would not be suitable for multi-casting. Furthermore, it would also not be obvious to one of ordinary skill in the art to combine this teaching with the switch from Tajima, because that Tajima switch is significantly different and provides multiple outputs. Neither Chang nor Tajima teach or suggest how such a switch may be integrated into the system of Chang, and neither Chang nor Tajima teach what additional equipment and connections would be required for the modified system to work.

This failure to teach the combination of elements of the present invention is also apparent in other ways. For example, although the Action rejects some of the broad claims of the present invention with Chang and Tajima, the Action uses Chang and Tajima and requires an additional reference, "Guha" (A. Guha, "The Evolution of Network Storage Architectures for Multimedia Applications", IEEE 1999), to find the elements for Claims 5 and 18-20. With regard to Claim 10, the Action uses Chang and Tajima and requires the introduction of a different reference, "Suemura" (U.S. Patent Number 6,243,178). With regard to claims 13-14, the Action uses Chang and Tajima and requires the introduction of yet another different reference Bortolini (U.S. Patent Application Publication Number 2002/0100056). Finally, with regard to claim 6, the Action uses four references: Chang, Tajima, Guha, and yet another new reference, "Gemmell" (D. Gemmell et al., "Multimedia Storage Servers: A Tutorial", IEEE, 1995). As a result, the Action cites a total of six references to reject twenty claims, none of which is unduly lengthy.

Applicant submits that if the combination of elements of the claimed invention was obvious to one of ordinary skill at the time the invention was made, then one or more references would exist to describe these combinations of elements and to teach how to make and use the invention and to realize the cost benefits and other advantages. This is particularly true because the telecommunications industry is under intense price competition, there is industry consolidation and bankruptcy, and it would be extremely important to realize cost savings such as those referenced in the Action and in the present application. As a result, the lack of such references, and the necessity to combine so many references to support the rejections in the Action, means that this combination of elements was not obvious to one of ordinary skill in the art at the time the invention was made.

Applicant does not claim to have invented cable television, telecommunications, optical switching or other parts that form the various embodiments of the present invention. The teachings to combine those elements, however, is unique to the present invention. Applicant submits that these combinations of elements and the motivation to combine these elements is neither taught nor suggested by the cited references, and therefore the present invention is patentable over the cited art. Accordingly, Applicant submits that claims 1-4, 7-9, 11-12, and 15-17 are not obvious from the cited references because neither reference teaches or otherwise provides motivation to combine the references in a way that would lead to the claimed invention. Also, Applicant submits that the remaining rejections based on Chang, Tajima, and one or more of the other references also fail to

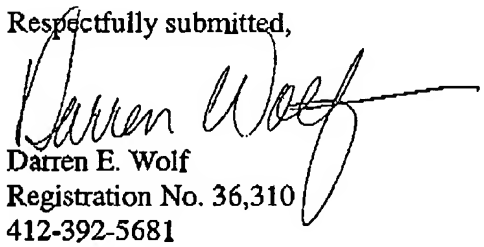
teach the present invention, and therefore the remaining claims are also not obvious from the cited references.

Conclusion.

Applicant submits that the application, as amended, is in condition for allowance. If the Examiner has any questions pertaining to this Amendment or to the subject application in general, the Examiner is encouraged to contact the undersigned.

Applicant believes that no fees are due with this Response. However, in the event fees are due with this Response, the Commissioner is hereby authorized to debit such fees from Charge Account Number 50-3198, in the name of Dickie, McCamey & Chilcote.

Respectfully submitted,



Darren E. Wolf
Registration No. 36,310
412-392-5681

Annotated Marked-up Drawings

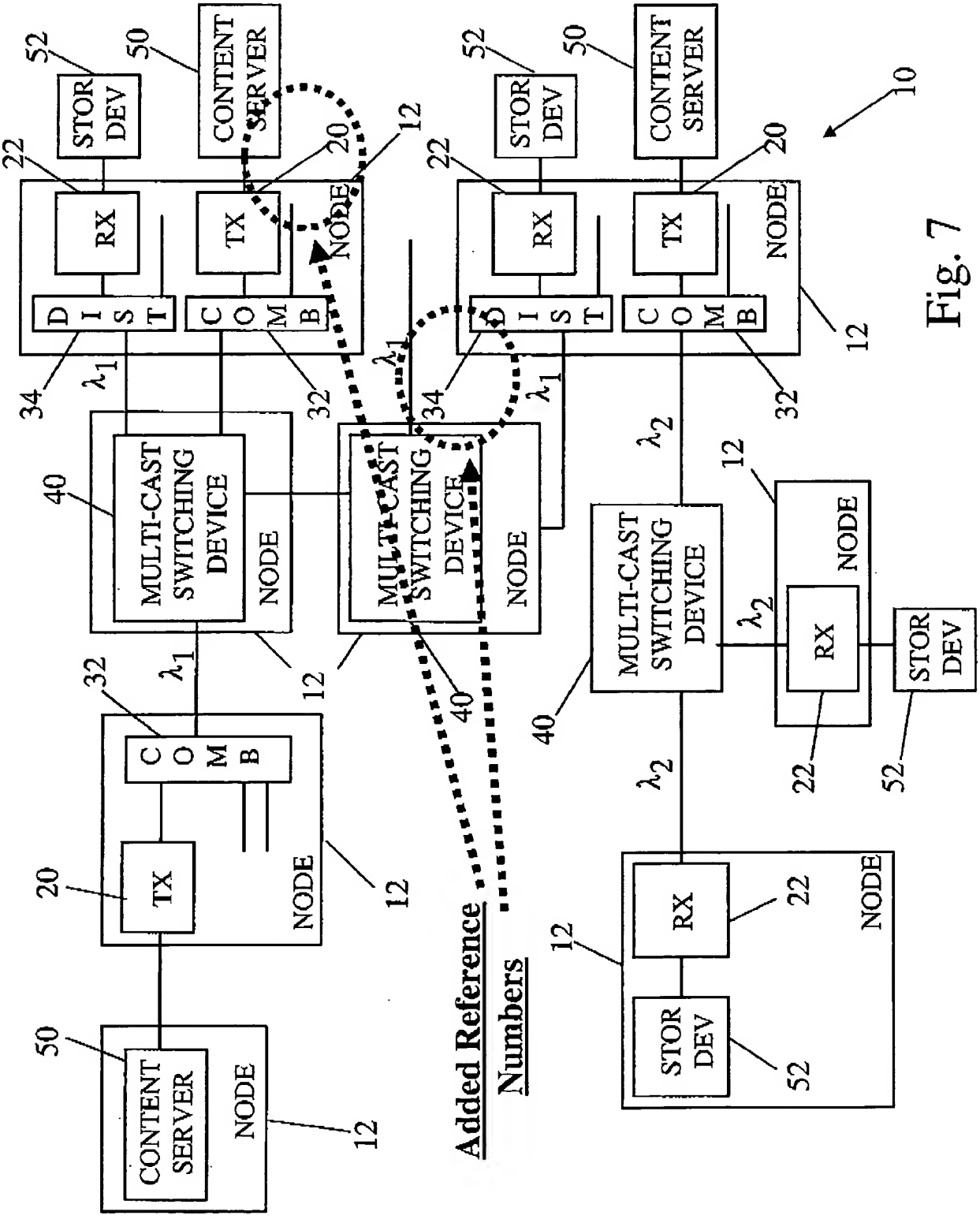


Fig. 7